In the Claims

Please amend the claims as follows:

Claims 1-51 (Canceled).

52. (Currently Amended) An assay kit comprising packaging material containing 1) a luminogenic substrate of a luminescent enzyme, or a luminogenic enzyme; and 2) an organic compound in an amount for reducing luminescence that is not dependent on the presence of an analyte by at least about 10 fold and for reducing luminescence that is dependent on the presence of an analyte by less than about 7 fold,

wherein the organic compound has at least one carbon-sulfur single bond (C-S), carbon-sulfur double bond (C=S), carbon-selenium single bond (C-Se), or carbon-selenium double bond (C=Se).

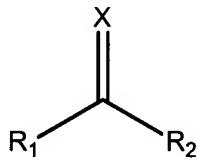
53. (Currently Amended) An assay kit comprising packaging material containing 1) a luminogenic substrate of a luminescent enzyme, or a luminogenic enzyme; and 2) an organic compound in an amount for reducing luminescence generated by luminogenic molecules not bound to an enzyme by at least about 10 fold and for reducing luminescence generated by luminogenic molecules bound to an enzyme by less than about 7 fold,

wherein the organic compound has at least one carbon-sulfur single bond (C-S), carbon-sulfur double bond (C=S), carbon-selenium single bond (C-Se), or carbon-selenium double bond (C=Se).

54. (Currently Amended) An assay kit comprising packaging material containing 1) a luminogenic substrate of a luminescent enzyme, or a luminogenic enzyme; and 2) an organic compound in an amount for reducing autoluminescence by at least about 10 fold, and for reducing luminescence that is dependent on the presence of an analyte by less than about 7 fold,

wherein the organic compound has at least one carbon-sulfur single bond (C-S), carbon-sulfur double bond (C=S), carbon-selenium single bond (C-Se), or carbon-selenium double bond (C=Se).

55. (Previously Presented) The kit of any one of claims 52, 53, and 54, wherein the organic compound is a compound of formula (I):



(I)

wherein

X is S or Se;

R_1 and R_2 are each independently hydrogen, (C_1-C_{20})alkyl, (C_3-C_8)cycloalkyl, (C_1-C_{20})alkoxy, (C_2-C_{20})alkenyl, (C_2-C_{20})alkynyl, aryl, heteroaryl, or NR_aR_b; or R_1 and R_2 taken together form a 5, 6, 7, or 8 membered saturated or unsaturated ring comprising carbon and optionally comprising 1, 2, or 3 heteroatoms selected from oxy (-O-), thio (-S-), or nitrogen (-NR_c)-, wherein the ring is optionally substituted with 1, 2, or 3 halo, hydroxy, oxo, thioxo, carboxy, (C_1-C_{20})alkyl, (C_3-C_8)cycloalkyl, (C_1-C_{20})alkoxy, (C_1-C_{20})alkanoyl, (C_1-C_{20})alkoxycarbonyl, (C_2-C_{20})alkenyl, (C_2-C_{20})alkynyl, aryl, or heteroaryl; and

R_a, R_b and R_c are each independently hydrogen, (C_1-C_{20})alkyl, (C_3-C_8)cycloalkyl, (C_2-C_{20})alkenyl, (C_1-C_{20})alkanoyl, (C_1-C_{20})alkoxycarbonyl, (C_2-C_{20})alkynyl, aryl, heteroaryl;

wherein any (C_1-C_{20})alkyl, (C_3-C_8)cycloalkyl, (C_1-C_{20})alkoxy, (C_2-C_{20})alkenyl, (C_1-C_{20})alkanoyl, (C_1-C_{20})alkoxycarbonyl, or (C_2-C_{20})alkynyl of R_1, R_2, R_a, R_b, and R_c is optionally substituted with one or more halo, hydroxy, mercapto, oxo, thioxo, carboxy, (C_1-C_{20})alkanoyl, (C_1-C_{20})alkoxycarbonyl, aryl, or heteroaryl; and wherein any aryl or heteroaryl is optionally substituted with one or more halo, hydroxy, mercapto, carboxy, cyano, nitro, trifluoromethyl, trifluoromethoxy, (C_1-C_{20})alkanoyl, (C_1-C_{20})alkanoyloxy, sulfo, or (C_1-C_{20})alkoxycarbonyl; or a salt thereof.

56. (Previously Presented) The kit of any one of claims 52, 53, and 54, wherein the organic compound is a compound of formula R_3SH wherein

R_3 is (C_1-C_{20})alkyl, (C_3-C_8)cycloalkyl, (C_2-C_{20})alkenyl, (C_2-C_{20})alkynyl, aryl, or heteroaryl;

any (C_1-C_{20})alkyl, (C_3-C_8)cycloalkyl, (C_2-C_{20})alkenyl, or (C_2-C_{20})alkynyl of R_3 is optionally substituted with one or more halo, hydroxy, mercapto, oxo, thioxo, carboxy, (C_1-C_{20})alkanoyl, (C_1-C_{20})alkoxycarbonyl, aryl, heteroaryl, or NR_dR_e;

R_d and R_e are each independently hydrogen, (C_1-C_{20})alkyl, (C_3-C_8)cycloalkyl, (C_2-C_{20})alkenyl, (C_2-C_{20})alkynyl, (C_1-C_{20})alkanoyl, (C_1-C_{20})alkoxycarbonyl, aryl, or heteroaryl; and

any aryl or heteroaryl is optionally substituted with one or more (1, 2, 3, or 4) halo, mercapto, hydroxy, oxo, carboxy, cyano, nitro, trifluoromethyl, trifluoromethoxy, (C_1-C_{20})alkanoyl, (C_1-C_{20})alkanoyloxy, sulfo or (C_1-C_{20})alkoxycarbonyl;

or a salt thereof.

57. (Previously Presented) The kit of any one of claims 52, 53, and 54, wherein the organic compound is a compound of formula R_4NCS wherein

R_4 is (C_1-C_{20})alkyl, (C_3-C_8)cycloalkyl, (C_2-C_{20})alkenyl, (C_2-C_{20})alkynyl, aryl, or heteroaryl;

any (C_1-C_{20})alkyl, (C_3-C_8)cycloalkyl, (C_2-C_{20})alkenyl, or (C_2-C_{20})alkynyl of R_4 is optionally substituted with one or more halo, hydroxy, mercapto, oxo, thioxo, carboxy, (C_1-C_{20})alkanoyl, (C_1-C_{20})alkoxycarbonyl, aryl, heteroaryl, or NR_fR_g;

R_f and R_g are each independently hydrogen, (C_1-C_{20})alkyl, (C_3-C_8)cycloalkyl, (C_2-C_{20})alkenyl, (C_2-C_{20})alkynyl, (C_1-C_{20})alkanoyl, (C_1-C_{20})alkoxycarbonyl, aryl, or heteroaryl; and

any aryl or heteroaryl is optionally substituted with one or more (1, 2, 3, or 4) halo, mercapto, hydroxy, oxo, carboxy, cyano, nitro, trifluoromethyl, trifluoromethoxy, (C_1-C_{20})alkanoyl, (C_1-C_{20})alkanoyloxy, sulfo, or (C_1-C_{20})alkoxycarbonyl;

or a salt thereof.

58. (Previously Presented) The kit of any one of claims 52, 53 and 54, wherein the organic compound is a compound of formula R_5-X-R_6 wherein

X is -S- or -Se-;

R_5 is (C_1-C_{20})alkyl, (C_3-C_8)cycloalkyl,(C_2-C_{20})alkenyl, (C_2-C_{20})alkynyl, aryl, or heteroaryl; and

R_6 is hydrogen, $(C_1\text{-}C_{20})$alkyl, $(C_3\text{-}C_8)$cycloalkyl,$(C_2\text{-}C_{20})$alkenyl, $(C_2\text{-}C_{20})$alkynyl, aryl, or heteroaryl;

or R_5 and R_6 taken together with X form a heteroaryl;

any $(C_1\text{-}C_{20})$alkyl, $(C_3\text{-}C_8)$cycloalkyl, $(C_2\text{-}C_{20})$alkenyl, or $(C_2\text{-}C_{20})$alkynyl of R_5 or R_6 is optionally substituted with one or more halo, hydroxy, mercapto, oxo, thioxo, carboxy, $(C_1\text{-}C_{20})$alkanoyl, $(C_1\text{-}C_{20})$alkoxycarbonyl, aryl, heteroaryl, or NR_kR_m;

R_k and R_m are each independently hydrogen, $(C_1\text{-}C_{20})$alkyl, $(C_3\text{-}C_8)$cycloalkyl, $(C_2\text{-}C_{20})$alkenyl, $(C_2\text{-}C_{20})$alkynyl, $(C_1\text{-}C_{20})$alkanoyl, $(C_1\text{-}C_{20})$alkoxycarbonyl, aryl, or heteroaryl; and

any aryl or heteroaryl is optionally substituted with one or more halo, mercapto, hydroxy, oxo, carboxy, cyano, nitro, trifluoromethyl, trifluoromethoxy, $(C_1\text{-}C_{20})$alkanoyl, $(C_1\text{-}C_{20})$alkanoyloxy, sulfo or $(C_1\text{-}C_{20})$alkoxycarbonyl;

or a salt thereof.

59. (Previously Presented) The kit of any one of claims 52, 53, and 54, wherein the enzyme substrate and the compound are each contained in a separate container.

60. (Previously Presented) The kit of any one of claims 52, 53, and 54, wherein the enzyme substrate and the compound are contained in a single container.

61. (Previously Presented) The kit of any one of claims 52, 53, and 54, further comprising a buffer solution suitable for use in a luminescent assay.

62. (Previously Presented) The kit of claim 61, wherein the enzyme substrate and the buffer solution are contained in a single container.

63. (Previously Presented) The kit of claim 61, wherein the compound and the buffer solution are contained in a single container.

64. (Previously Presented) The kit of any one of claims 52, 53, and 54, further comprising a substrate for a second luminescent enzyme.

65. (Previously Presented) The kit of any one of claims 52, 53, and 54, further comprising a quenching agent for a luminescent enzyme reaction.

66. (Currently Amended) The kit of any one of claims 52, 53, and 54, wherein the substrate is a substrate for firefly luciferase or a substrate for a *Renilla* luciferase.

67. (New) The kit of any one of claims 52, 53, or 54, wherein the organic compound is not a polypeptide or protein comprising one or more mercapto (C-SH) groups.

68. (New) The kit of any one of claims 52, 53, or 54, wherein the organic compound does not comprise one or more mercapto (C-SH) groups.